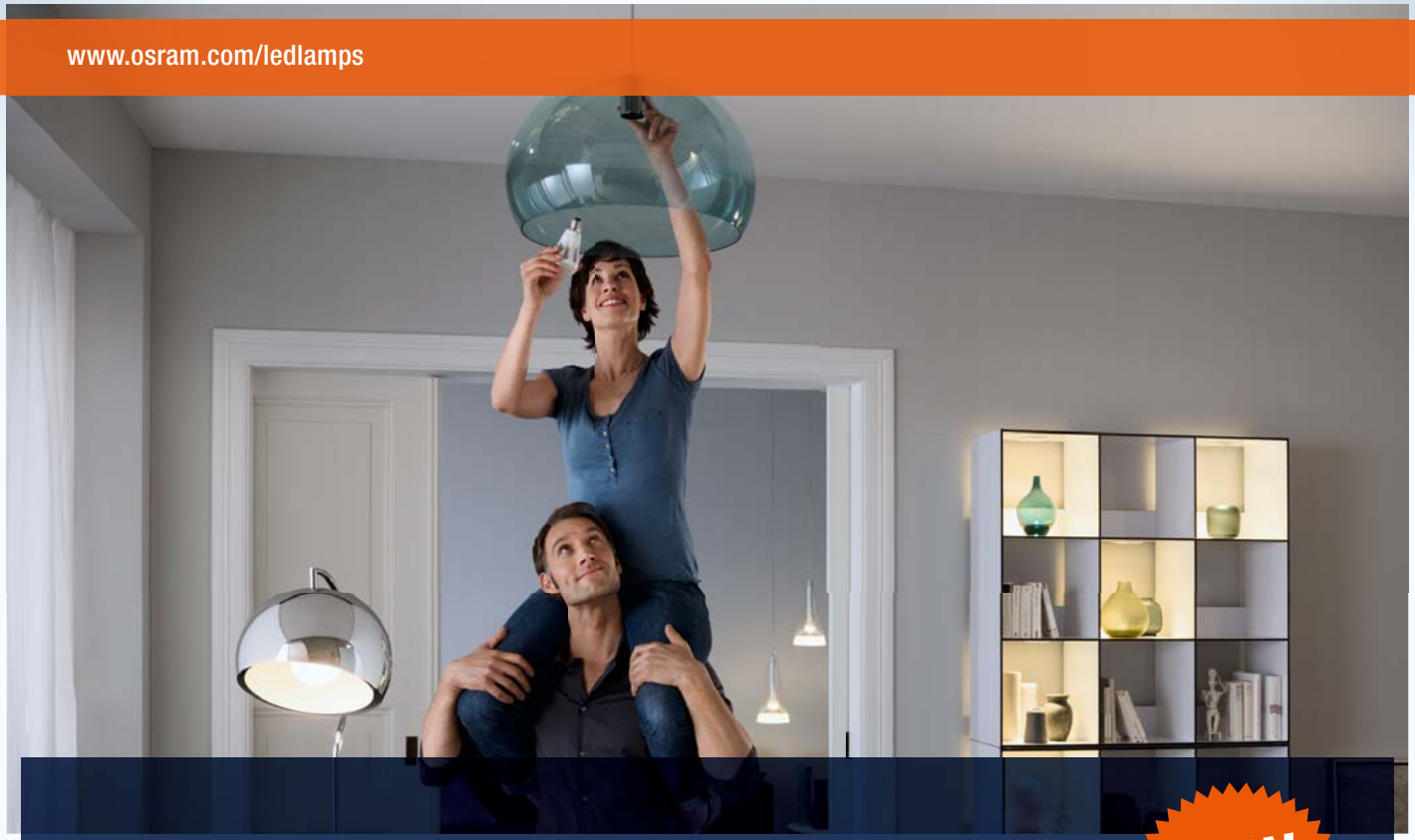
www.osram.com/ledlamps



NEW RANGE

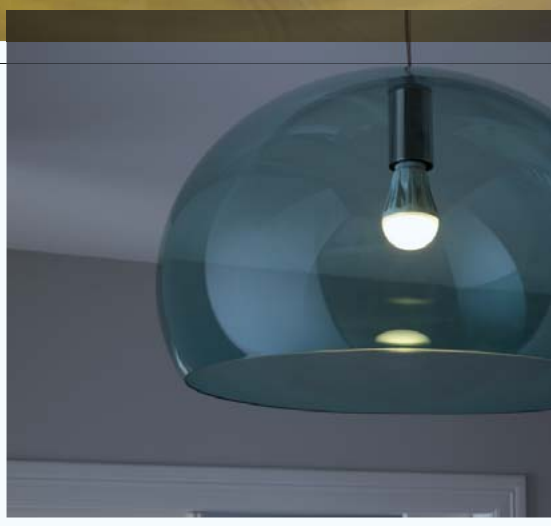
Simply superior.
Simply OSRAM LED.

OSRAM LED lamps for the best light. Now and in the future.

OSRAM LED CREATING TOMORROW

OSRAM

Welcome to the future.



LED – for OSRAM, the lighting specialist, these three letters spell the future of light. This is because high-quality OSRAM LED products are not only unbeatable in terms of their efficiency and durability, they are also incredibly versatile.

For general illumination, OSRAM LED lamps with their outstanding light are already being used as simple direct replacements for incandescent lamps up to 50 W. And as far as atmospheric lighting is concerned, the many colored and color-changing LED lamps in the OSRAM range give designers enormous creative freedom. The innovative LED range is rounded off with special lamps for residential properties and the entertainment industry.

So you see, the future of light has already begun – welcome to this exciting world.

A real innovation.

OSRAM LED lamps are not just modern and stylish, they have such outstanding properties that they offer a whole series of practical benefits. In terms of durability, quality of light, economy and environmental impact, LED lamps from OSRAM are truly pioneering – and, more than almost any other technology, rightly deserve the title of innovation.

The new quality standard:

- No UV or near infrared radiation
- Low thermal output
- Instant 100 % light
- 100,000 switching cycles and more
- White light with good color rendering
- Warm White light similar to that from an incandescent lamp
- Impact and vibration-proof
- Available in many different designs and with different bases for simple direct replacement

The new environmental protection standard:

- Up to 90 % lower CO_2 emissions compared with similar conventional incandescent and halogen lamps
- Outstanding eco balance thanks to low energy requirements in production and low energy consumption in operation
- Mercury-free
- Less waste and low consumption of resources thanks to extremely long life

The new efficiency standard:

- Up to 90 % energy savings compared with similar conventional incandescent lamps
- Life of up to 35 years*
- Direct replacement so no need to change the system
- Reduced air-conditioning costs thanks to extremely low thermal output

* Corresponds to an average life of 35,000 hours if used for about 2.7 hours each day.

Guaranteed better:
OSRAM LEDs.

Our engineering know-how, our insistence on using only top-quality components and our strict quality assurance procedures have all paid off. This is why OSRAM can give a 3-year guarantee on LED STAR lamps and a full 4-year guarantee on LED SUPERSTAR lamps.

For the terms and conditions of the guarantee go to **www.osram.com/guarantee**

3 Year OSRAM Guarantee
www.osram.com/guarantee

4 Year OSRAM Guarantee
www.osram.com/guarantee

Progress that pays for itself.

LED lamps are highly complex and are at the cutting edge of technology. It's no wonder then that they cost more to buy than conventional light sources. For you this means greater profit margins. But also for your customers, LED technology will pay for itself in only a short time – thanks to the incredibly low energy consumption and extremely long life of LEDs. The economics of LED lamps is a powerful sales argument – see for yourself!

15 × conventional 40 W incandescent light bulbs

OSRAM LED STAR CLASSIC A 40 8 W

Instead of 15 × 40 W incandescent light bulbs: one OSRAM LED STAR CLASSIC A 40.

Impressive figures. Over its average life of 15 years one OSRAM LED STAR CLASSIC A 40 rate at 8 W will not only replace 15 conventional light bulbs but also drastically reduce power consumption – and therefore electricity costs and CO_2 emissions.

Basis: Electricity price EUR 0.21 EUR/kWh, 1000 hours of operation per year, 2.7 hours per day, energy mix 0.5 kg CO_2/kWh.
Calculated for 15,000 hours (corresponding to the average life of an OSRAM LED STAR CLASSIC A 40).

25 standard PAR16 35 W halogen lamps

OSRAM LED SUPERSTAR
PAR16 35 25° 4.5 W

Instead of 25 halogen reflector lamps:
one OSRAM LED SUPERSTAR PAR16 35 25°.

Over a period of 25 years one OSRAM LED SUPERSTAR PAR16 35 25° rated at only 4.5 W will replace around 25 standard halogen reflector lamps each rated at 35 W. As the graphics show, the potential energy savings are even higher than is the case with GLS lamps.

Power consumption | **Electricity costs** | **CO_2 emissions**

Standard 35 W PAR16 halogen lamps

OSRAM LED SUPERSTAR PAR16 35 25° mit 4.5 W

Basis: Electricity price EUR 0.21 EUR/kWh, 1000 hours of operation per year, 2.7 hours per day, energy mix 0.5 kg CO_2/kWh.
Calculated for 25,000 hours (corresponding to the average life of an OSRAM LED SUPERSTAR PAR16 35).

Meeting the highest demands:

OSRAM is setting new standards with a wide range of LED SUPERSTAR lamps. The specifications are truly impressive: outstanding efficiency, a life of up to 35 years[1], a color deviation from lamp to lamp of only 200 K and good color rendering of up to R_a 90. What's more, the lamps come in a wide range of versions, including dimmable types, with many different types of screw-type and plug-in bases. OSRAM LED SUPERSTAR lamps therefore meet even the highest demands in virtually any application.

1/2/3
OSRAM LED SUPERSTAR CLASSIC A – 25/40/50
- *Average life of up to 25 years[2]*
- *CLASSIC A 40 Advanced: dimmable[3]*
- *CLASSIC A 50 Advanced: dimmable[3]*
- *Replacement options:*
  25 W incandescent lamp – CLASSIC A 25
  40 W incandescent lamp – CLASSIC A 40 Advanced
  50 W incandescent lamp – CLASSIC A 50 Advanced

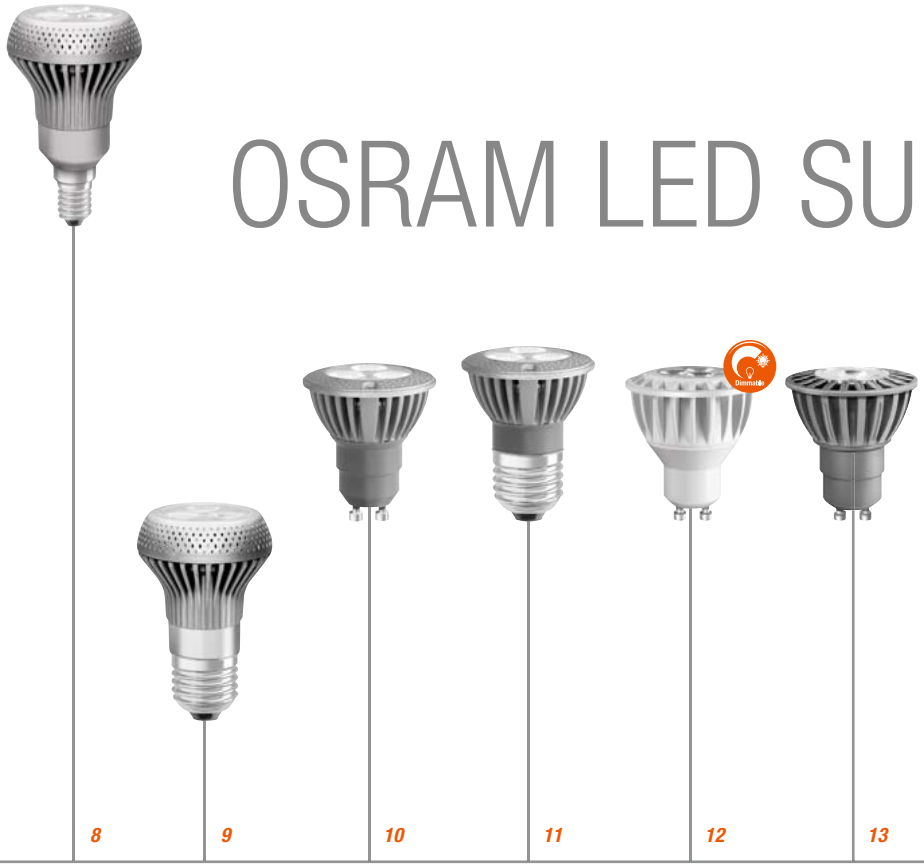
4
OSRAM LED SUPERSTAR CLASSIC B – 25
- *Average life of up to 25 years[2]*
- *Replacement options:*
  25 W incandescent lamp – CLASSIC B 25

5/6
OSRAM LED SUPERSTAR CLASSIC P – 25
- *Average life of up to 25 years[2]*
- *Replacement options:*
  20 W incandescent lamp – CLASSIC P 25

7
OSRAM LED SUPERSTAR GLOBE – 40
- *Average life of up to 25 years[2]*
- *Replacement options:*
  40 W incandescent lamp – GLOBE 40

ENERGY SAVINGS OF AT LEAST 80 %

OSRAM LED SUPERSTAR.



8/9

OSRAM LED SUPERSTAR R50 – 25/40

- *Average life of up to 25 years[2]*
- *Simple direct replacement thanks to the same dimensions as a standard R50 incandescent spotlight*
- *Replacement options:*
  25 W Spot incandescent lamp – R50 25
  40 W Spot incandescent lamp – R50 40

10/11/12/13

OSRAM LED SUPERSTAR PAR16 – 35/50

- *Average life of up to 35 years[1]*
- *Beam angle of 25° or 35°*
- *Version with GU10 base ideal for direct replacement in existing halogen luminaires*
- *PAR16 35 Advanced: dimmable[3]*
- *Replacement options:*
  35 W halogen lamp – PAR16 35
  50 W halogen lamp – PAR16 50

14

OSRAM LED SUPERSTAR MR11 – 20

- *Average life of up to 25 years[2]*
- *Low-voltage operation on CCG and ECG[4]*
- *Ideal as a replacement in existing low-voltage halogen reflector luminaires*
- *Replacement options:*
  20 W halogen lamp – MR11 20

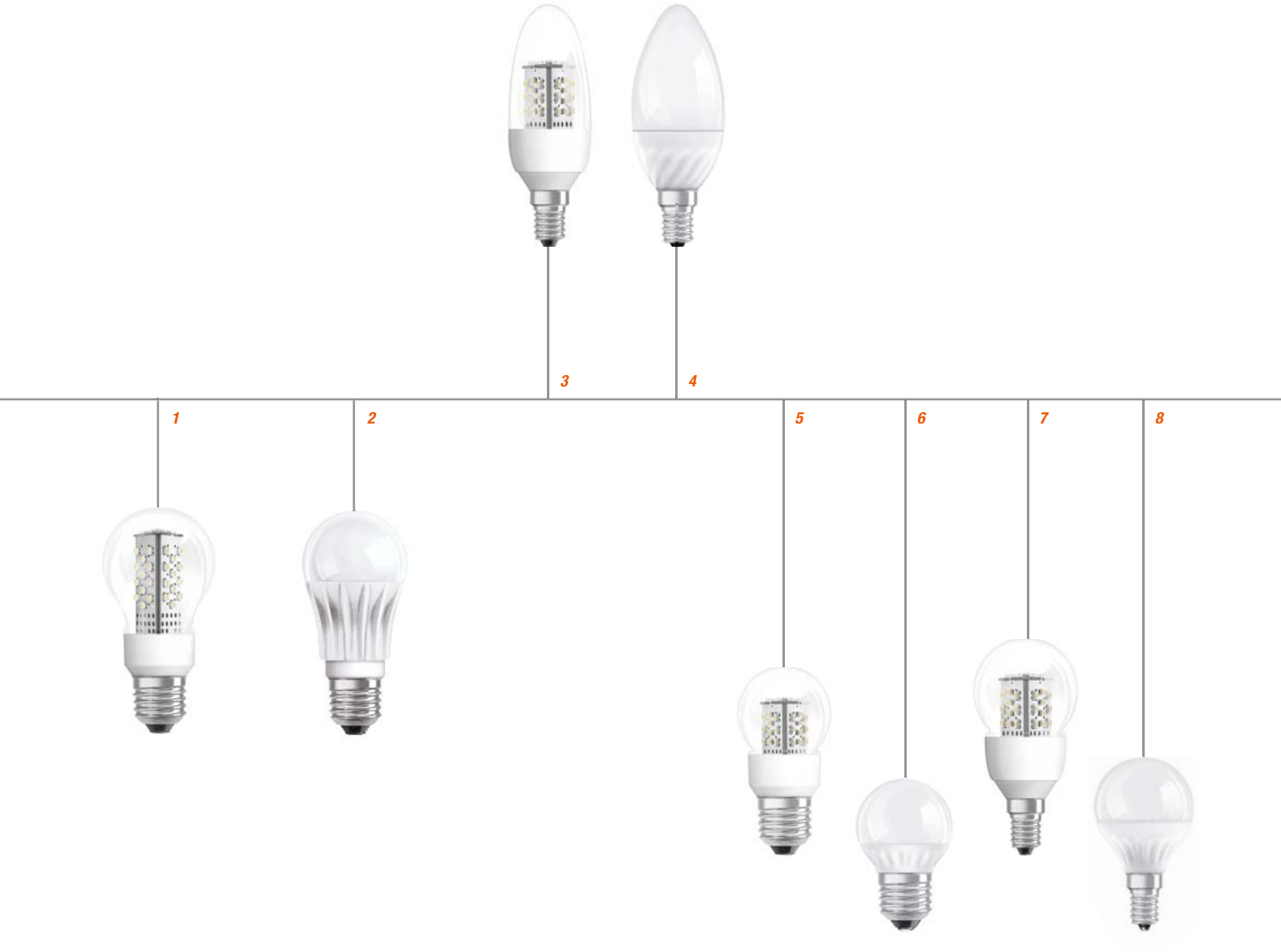
15

OSRAM LED SUPERSTAR MR16 – 20/35

- *Average life of up to 25 years[2]*
- *Low-voltage operation on CCG and ECG[4]*
- *Ideal as a replacement in existing low-voltage halogen reflector luminaires*
- *Simple replacement thanks to the same dimensions as halogen MR16 lamps*
- *Replacement options:*
  20 W low-voltage halogen lamp – MR16 20
  35 W low-voltage halogen lamp – MR16 35

[1] Corresponds to an average life of 35,000 hours if used for about 2.7 hours each day.
[2] Corresponds to an average life of 25,000 hours if used for about 2.7 hours each day.
[3] For more information on conformity in dimming operations go to www.osram.com/dim
[4] For more detailed information go to www.osram.com/low-voltage-ledlamps

For day-to-day use:



LED STAR lamps from OSRAM are impressive for their outstanding price/performance ratio. As efficient as OSRAM LED SUPERSTAR lamps, they have an impressively long life of up to 15 years[1] and an R_a value of up to 80. LED STAR lamps are also available with many different types of screw and plug-in bases. Your customers are bound to find the right everyday lamp in the OSRAM LED STAR range – whatever application they might be looking for.

ENERGY SAVINGS OF AT LEAST 80 %

OSRAM LED STAR.

9

10

11

12

13

1/2

OSRAM LED STAR CLASSIC A – 15/25/40

- *Average life of up to 15 years[1]*
- *CLASSIC A 15: suitable for indoors and outdoors*
- *Replacement options:*
  15 W incandescent lamp – CLASSIC A 15
  25 W incandescent lamp – CLASSIC A 25
  40 W incandescent lamp – CLASSIC A 40

3/4

OSRAM LED STAR CLASSIC B – 15/20

- *Average life of up to 15 years[1]*
- *CLASSIC B 15: suitable for indoors and outdoors*
- *CLASSIC B 20: very small and with a high-quality ceramic heat sink*
- *Replacement options:*
  15 W incandescent lamp – CLASSIC B 15
  20 W incandescent lamp – CLASSIC B 20

5/6/7/8

OSRAM LED STAR CLASSIC P – 15/20

- *Average life of up to 15 years[1]*
- *CLASSIC P 15: suitable for indoors and outdoors*
- *CLASSIC P 20: very small and with a high-quality ceramic heat sink*
- *Replacement options:*
  15 W incandescent lamp – CLASSIC P 15
  20 W incandescent lamp – CLASSIC P 20

9

OSRAM LED STAR GLOBE – 15

- *Average life of up to 15 years[1]*
- *Suitable for indoors and outdoors*
- *Replacement options:*
  15 W incandescent lamp – GLOBE 15

10

OSRAM LED STAR R50 – 20

- *Average life of up to 15 years[1]*
- *Directional accent light with a beam angle of 25°*
- *Simple replacement for incandescent spotlights*
- *Replacement options:*
  20 W Spot incandescent lamp – R50 20

11/12

OSRAM LED STAR PAR16 – 15/20/35

- *Average life of up to 15 years[1]*
- *Beam angle of 25°*
- *Simple direct replacement in existing halogen luminaires*
- *Replacement options:*
  15 W halogen lamp – PAR16 15
  20 W halogen lamp – PAR16 20
  35 W halogen lamp – PAR16 35

13

OSRAM LED STAR MR16 – 20

- *Average life of up to 15 years[1]*
- *Beam angle of 25°*
- *Low-voltage operation on CCG[2]*
- *Ideal as a replacement in existing low-voltage halogen reflector luminaires*
- *Simple replacement thanks to the same dimensions as halogen MR16 lamps*
- *Replacement options:*
  20 W low-voltage halogen lamp – MR16 20

[1] Corresponds to an average life of 15,000 hours if used for about 2.7 hours each day.
[2] For more detailed information go to www.osram.com/low-voltage-ledlamps

For special tasks.

The special properties of LED technology make it ideal for decorative ambient lighting and specific task lighting such as in refrigerators. With its LED STAR DECO and SPECIAL ranges, OSRAM offers its customers a broad spectrum of special economical lamps and white, colored or color-changing LED lamps for atmospheric effect lighting.

1

OSRAM LED STAR DECO CLASSIC A

- *Average life of up to 25 years[1]*
- *Suitable for indoors and outdoors*
- *Available in White, Blue, Green, Red, Yellow and Colorchange*
- *Colorchange with Color Stop technology: stop at any color simply by double-clicking the light switch*

2

OSRAM LED STAR DECO CLASSIC B

- *Average life of up to 25 years[1]*
- *Suitable for indoors and outdoors*
- *Available in White, Blue, Green, Red, Yellow and Colorchange*
- *Colorchange with Color Stop technology: stop at any color simply by double-clicking the light switch*

3/4

OSRAM LED STAR DECO CLASSIC BW and BA

- *Average life of up to 15 years[2]*
- *For decorative indoor lighting*
- *Available as a frosted bent tip candle and as a twisted version*

5/6

OSRAM LED STAR DECO CLASSIC P

- *Average life of up to 25 years[1]*
- *Suitable for indoors and outdoors*
- *Available in White, Blue, Green, Red, Yellow and Colorchange*
- *Colorchange with Color Stop technology: stop at any color simply by double-clicking the light switch*

OSRAM LED STAR DECO & SPECIAL.

7 ○ 8 ○ 9 ●◐ 10 ●◐

11 12 13 14

7/8

OSRAM LED STAR DECO PAR16

- *Average life of up to 25 years[1]*
- *Directional accent light with a beam angle of 20°*
- *Warm White or Daylight light color: Equipped with OSRAM Golden DRAGON® Plus LEDs*

9/10

OSRAM LED STAR DECOSPOT® PAR16

- *Average life of up to 25 years[1]*
- *Directional accent light with a beam angle of 12°*
- *Available in Blue and Colorchange*

11

OSRAM LED STAR SPECIAL T26

- *Ideal for use in refrigerators and sewing machines*
- *Average life of up to 10 years[3]*
- *Suitable for indoors and outdoors*
- *Robust and extremely small*
- *Daylight color suitable for use in refrigerators*

12

OSRAM LED STAR SPECIAL PIN G4

- *Ideal for "starlight ceilings"*
- *Average life of up to 15 years[2]*
- *For use in open luminaires*
- *Replaces decorative halogen light sources with G4 bases[4]*

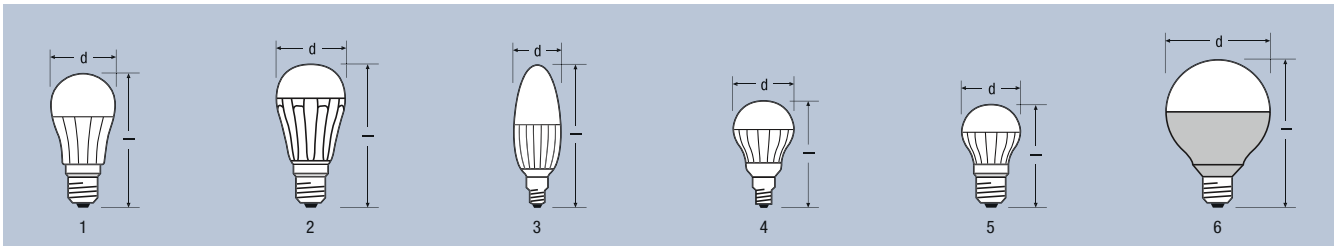
13/14

DULED® Stick and Twist versions

- *2in1: energy-saving lamp for general illumination and LED as a night light, orientation light or background light*
- *Average life of up to 6 years[5]*

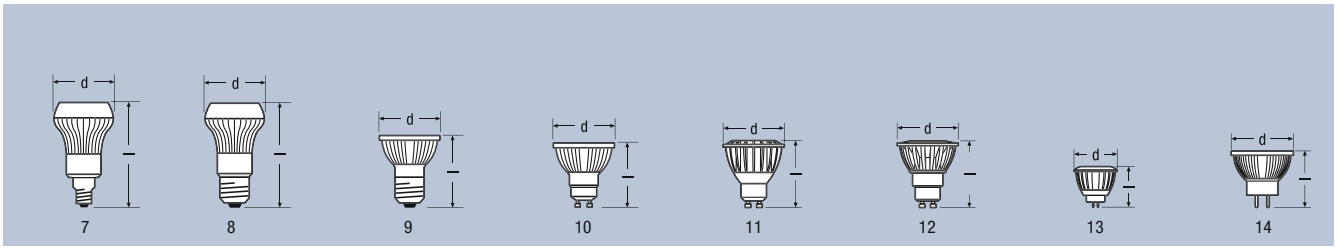
[1] Corresponds to an average life of 25,000 hours if used for about 2.7 hours each day.
[2] Corresponds to an average life of 15,000 hours if used for about 2.7 hours each day.
[3] Corresponds to an average life of 10,000 hours if used for about 2.7 hours each day.
[4] The dimensions are very different from those of halogen lamps.
[5] Corresponds to an average life of 6,000 hours if used for about 2.7 hours each day.

TECHNICAL DATA – OSRAM LED SUPERSTAR



	Product reference	Product number (EAN)		W [1]	lm [1]	cd [1]	[1]	l [mm]	d [mm]		No.
	OSRAM LED SUPERSTAR CLASSIC A, classic shape										
	E27 – 100–240 V – Blister box										
	CL A 25 (frosted) WW	4008321**965103**	Warm White	6.3	290	—	—	102.5	55	6	1
	E27 – 220–240 V – Blister box										
DIM	CL A 40 Advanced (frosted) WW	4008321**960634**	Warm White	8.5	470	—	—	115	57	4	1
DIM	CL A 50 Advanced (frosted) WW	4008321**645944**	Warm White	12	650	—	—	126	62	4	2
	OSRAM LED SUPERSTAR CLASSIC B, candle shape										
	E14 – 220–240 V – Blister box										
	CL B 25 (frosted) WW	4008321**984104**	Warm White	4.5	250	—	—	117	40	6	3
	OSRAM LED SUPERSTAR CLASSIC P, round shape										
	E14 – 100–240 V – Blister box										
	CL P 25 (frosted) WW	4008321**981332**	Warm White	4	200	—	—	78	45	6	4
	E27 – 100–240 V – Blister box										
	CL P 25 (frosted) WW	4008321**981295**	Warm White	4	200	—	—	78	45	6	5
	OSRAM LED SUPERSTAR GLOBE, globe shape										
	E27 – 220–240 V – Box										
	G95 40 (frosted) WW	4008321**965387**	Warm White	10.5	470	—	—	130	95	6	6

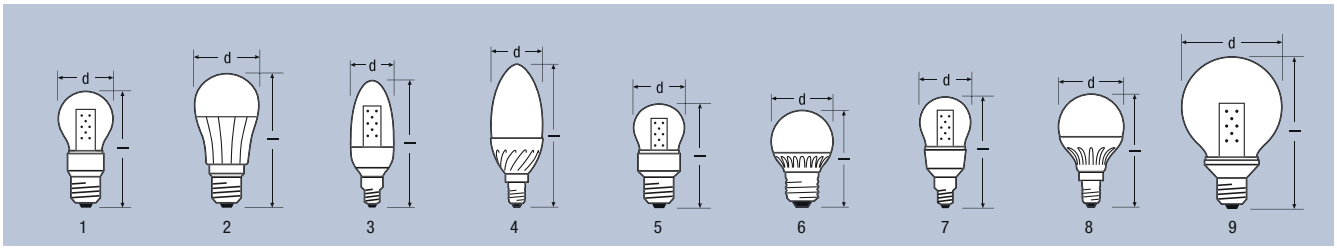
[1] All the technical parameters apply to the entire lamp. In view of the complex manufacturing process for light emitting diodes, the typical values given above for the technical LED parameters are merely statistical values that do not necessarily correspond to the actual technical parameters of an individual product; individual products may vary from the typical values.



	Product reference	Product number (EAN)		W [1]	lm [1]	cd [1]	[1]	l [mm]	d [mm]		No.
	OSRAM LED SUPERSTAR R50, spot										
	E14 – 220–240 V – Blister box										
	R50 25 30° D	4008321**981394**	Daylight	3	140	350	30°	85	50	6	7
	R50 25 30° WW	4008321**981417**	Warm White	3	100	250	30°	85	50	6	7
	R50 40 30° D	4008321**981431**	Daylight	6	240	590	30°	85	50	6	7
	R50 40 30° WW	4008321**981455**	Warm White	6	170	500	30°	85	50	6	7
	E27 – 220–240 V – Blister box										
	R50 40 30° D	4008321**981530**	Daylight	6	240	590	30°	83	50	6	8
	R50 40 30° WW	4008321**981516**	Warm White	6	170	500	30°	83	50	6	8
	OSRAM LED SUPERSTAR PAR16, reflector										
	E27 – 220–240 V – Blister box										
	PAR16 35 25° D	4008321**981370**	Daylight	4.5	230	950	25°	68	50	6	9
	PAR16 35 25° WW	4008321**981356**	Warm White	4.5	170	700	25°	68	50	6	9
	GU10 – 220–240 V – Blister box										
	PAR16 35 25° D [2]	4008321**646804**	Daylight	4.5	230	950	25°	58	50	6	10
	PAR16 35 25° WW [3]	4008321**646774**	Warm White	4.5	170	700	25°	58	50	6	10
DIM	PAR16 35 35° Advanced WW [4]	4008321**975409**	Warm White	5.5	200	600	35°	58	50	6	11
	PAR16 35 25° CW [5]	4008321**973658**	Cool White	5	240	950	25°	57	50	6	12
	PAR16 35 25° WW [5]	4008321**976864**	Warm White	5	170	700	25°	57	50	6	12
	PAR16 50 25° WW [5]	4008321**976888**	Warm White	5	200	850	25°	57	50	6	12
	OSRAM LED SUPERSTAR MR11, reflector										
	GU4 – 12 V – Blister box										
	MR11 20 24° WW [4]	4008321**975560**	Warm White	3	120	700	24°	40	35	6	13
	OSRAM LED SUPERSTAR MR16, reflector										
	GU5.3 – 12 V – Blister box										
	MR16 20 36° WW	4008321**646743**	Warm White	4.5	185	450	36°	48	50	6	14
	MR16 35 24° WW	—[6]	Warm White	—[6]	—	—[6]	24°	48	50	6	14

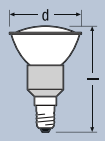
[2] Probably no longer available in 2012
[3] Probably no longer available from the start of 2012
[4] Available from Fall 2012
[5] Available from the start of 2012
[6] In preparation

TECHNICAL DATA – OSRAM LED STAR

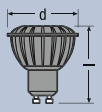


Product reference	Product number (EAN)		W [1]	lm [1]	cd [1]	[1]	l [mm]	d [mm]		No.
OSRAM LED STAR CLASSIC A, classic shape										
E27 – 100–240 V – Blister										
CL A (clear) 15 CW	4008321**974631**	Cool White	3	136	—	—	109	55	6	1
CL A (clear) 15 WW	4008321**974679**	Warm White	3	136	—	—	109	55	6	1
E27 – 220–240 V – Blister										
CL A 25 (frosted) WW	4008321**980687**	Warm White	5.4	250	—	—	114	55	6	2
CL A 40 (frosted) D	4008321**980717**	Daylight	8	470	—	—	114	55	6	2
CL A 40 (frosted) WW	4008321**980700**	Warm White	8	470	—	—	114	55	6	2
OSRAM LED STAR CLASSIC B, candle shape										
E14 – 100–240 V – Blister										
CL B (clear) 15 CW	4008321**974792**	Cool White	2.5	136	—	—	105	35	6	3
CL B (clear) 15 WW	4008321**974839**	Warm White	2.5	136	—	—	105	35	6	3
E14 – 220–240 V – Blister										
CL B 20 (frosted) D	4008321**981141**	Daylight	3	200	—	—	102	37	6	4
CL B 20 (frosted) WW	4008321**980724**	Warm White	4	200	—	—	102	37	6	4
OSRAM LED STAR CLASSIC P, round shape										
E27 – 100–240 V – Blister										
CL P (clear) 15 CW	4008321**974716**	Cool White	2.5	136	—	—	90	45	6	5
CL P (clear) 15 WW	4008321**974754**	Warm White	2.5	136	—	—	90	45	6	5
E27 – 220–240 V – Blister										
CL P 20 (frosted) WW	4008321**980731**	Warm White	4	200	—	—	71.3	45	6	6
E14 – 100–240 V – Blister										
CL P (clear) 15 WW	4008321**974877**	Warm White	2.5	136	—	—	90	45	6	7
E14 – 220–240 V – Blister										
CL P 20 (frosted) WW	4008321**980748**	Warm White	4	200	—	—	78	45	6	8
OSRAM LED STAR GLOBE, globe shape										
E27 – 100–240 V – Blister										
CL G (clear) 15 WW	4008321**974570**	Warm White	3	136	—	—	142	95	6	9

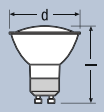
[1] All the technical parameters apply to the entire lamp. In view of the complex manufacturing process for light emitting diodes, the typical values given above for the technical LED parameters are merely statistical values that do not necessarily correspond to the actual technical parameters of an individual product; individual products may vary from the typical values.



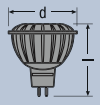
10



11



12

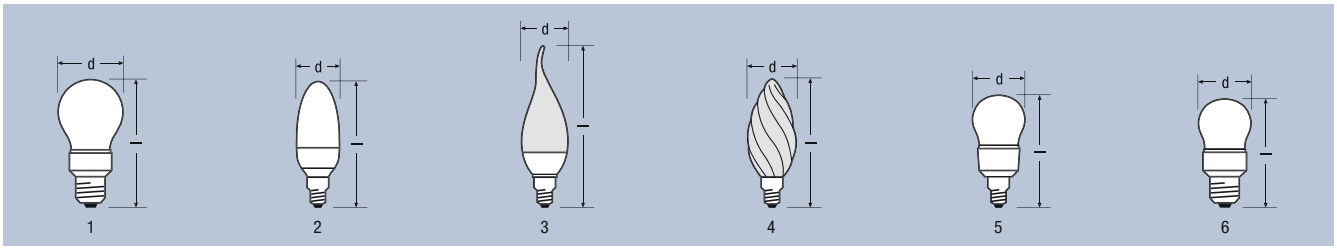


13

Product reference	Product number (EAN)		W [1]	lm [1]	cd [1]	[1]	l [mm]	d [mm]		No.
OSRAM LED STAR R50, spot										
E14 – 220–240 V – Blister										
R50 20 25° WW	4008321**974426**	Warm White	2	90	300	25°	75	50	6	10
OSRAM LED STAR PAR16, reflector										
GU10 – 100–240 V – Blister										
PAR16 20 25° WW [2]	4008321**978066**	Warm White	4	120	450	25°	57	50	6	11
PAR16 35 25° WW [3]	4008321**973221**	Warm White	4	120	600	25°	57	50	6	11
GU10 – 220–240 V – Blister										
PAR16 15 25° WW	4008321**639417**	Warm White	2	90	300	25°	57	50	6	12
OSRAM LED STAR MR16, reflector										
GU5.3 – 12 V – Blister										
MR16 20 25° WW	4008321**978059**	Warm White	4	120	450	25°	53	50	6	13

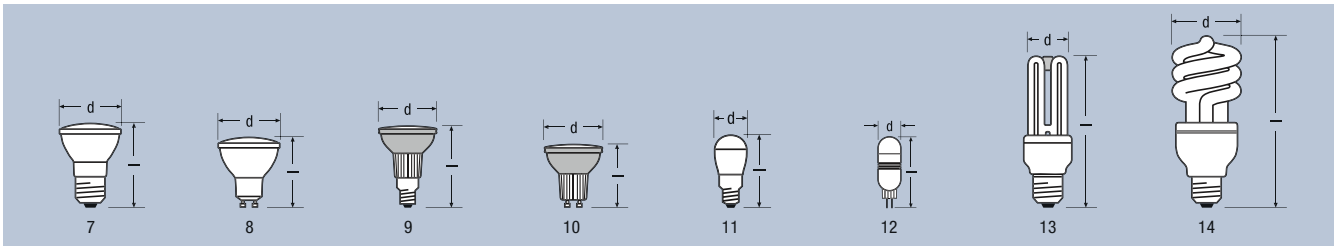
[2] Probably no longer available after Fall 2011
[3] Available from Fall 2011

TECHNICAL DATA – OSRAM LED STAR DECO AND SPECIAL



Product reference	Product number (EAN)		W [1]	lm [1]	cd [1]	[1]	l [mm]	d [mm]		No.
OSRAM LED STAR DECO CLASSIC A, classic shape										
E27 – 220–240 V – Blister										
DECO CL A (frosted) WW	4008321**951748**	Warm White	2	50	—	—	109	55	6	1
E27 – 100–240 V – Blister										
DECO CL A (frosted) CC/CS	4008321**918307**	Color Changing	0.5	—	—	—	109	55	6	1
DECO CL A (frosted) BL	4008321**918314**	Blue	1.2	—	—	—	109	55	6	1
DECO CL A (frosted) GN	4008321**918321**	Green	1.5	—	—	—	109	55	6	1
DECO CL A (frosted) RD	4008321**918338**	Red	1	—	—	—	109	55	6	1
DECO CL A (frosted) YE	4008321**918345**	Yellow	1	—	—	—	109	55	6	1
OSRAM LED STAR DECO CLASSIC B, candle shape										
E14 – 220–240 V – Blister										
DECO CL B (frosted) WW	4008321**951762**	Warm White	2	50	—	—	104	35	6	2
E14 – 100–240 V – Blister										
DECO CL B (frosted) CC/CS	4008321**922724**	Color Changing	0.5	—	—	—	104	35	6	2
DECO CL B (frosted) BL	4008321**922748**	Blue	1.2	—	—	—	104	35	6	2
DECO CL B (frosted) GN	4008321**922762**	Green	1.2	—	—	—	104	35	6	2
DECO CL B (frosted) RD	4008321**922786**	Red	1	—	—	—	104	35	6	2
DECO CL B (frosted) YE	4008321**922809**	Yellow	1	—	—	—	104	35	6	2
OSRAM LED STAR DECO CLASSIC BW and BA, twisted candle/bent tip										
E14 – 220–240 V – Blister										
DECO CL BW (frosted)	4008321**980366**	Warm White	1.4	80	—	—	122	35	6	3
DECO CL BA (frosted)	4008321**980403**	Warm White	1.4	80	—	—	130	36	6	4
OSRAM LED STAR DECO CLASSIC P, round shape										
E27 – 220–240 V – Blister										
DECO CL P (frosted) WW	4008321**597663**	Warm White	2	50	—	—	90	45	6	5
E14 – 220–240 V – Blister										
DECO CL P (frosted) WW	4008321**951786**	Warm White	2	50	—	—	95	45	6	6
E27 – 100–240 V – Blister										
DECO CL P (frosted) CC/CS	4008321**922526**	Color Changing	0.5	—	—	—	90	45	6	5
DECO CL P (frosted) BL	4008321**922540**	Blue	1.2	—	—	—	90	45	6	5
DECO CL P (frosted) GN	4008321**922564**	Green	1.2	—	—	—	90	45	6	5
DECO CL P (frosted) RD	4008321**922588**	Red	1	—	—	—	90	45	6	5
DECO CL P (frosted) YE	4008321**922601**	Yellow	1	—	—	—	90	45	6	5

[1] All the technical parameters apply to the entire lamp. In view of the complex manufacturing process for light emitting diodes, the typical values given above for the technical LED parameters are merely statistical values that do not necessarily correspond to the actual technical parameters of an individual product; individual products may vary from the typical values.



Product reference	Product number (EAN)		W [1]	lm [1]	cd [1]	[1]	l [mm]	d [mm]		No.
OSRAM LED STAR DECO PAR16, reflector										
E27 – 100–240 V – Blister										
DECO PAR16 10 D	4008321**963468**	Daylight	2	70	290	20°	70	50	6	7
DECO PAR16 10 WW	4008321**963444**	Warm White	2	55	270	20°	70	50	6	7
GU10 – 100–240 V – Blister										
DECO PAR16 10 D	4008321**963581**	Daylight	2	70	290	20°	60	50	6	8
DECO PAR16 10 WW	4008321**963567**	Warm White	2	55	270	20°	60	50	6	8
OSRAM LED STAR DECOSPOT® PAR16, reflector										
E14 – 220–240 V – Blister										
DECOSPOT PAR16 CC	4008321**905550**	Color Changing	1	—	—	12°	77	50	6	9
DECOSPOT PAR16 BL	4008321**905543**	Blue	1	—	50	12°	77	50	6	9
GU10 – 220–240 V – Blister										
DECOSPOT PAR16 CC	4008321**905598**	Color Changing	1	—	—	12°	57	50	6	10
DECOSPOT PAR16 BL	4008321**905581**	Blue	1	—	50	12°	57	50	6	10
OSRAM LED STAR SPECIAL T26, for refrigerators/sewing machines										
E14 – 220–240 V – Blister										
SPECIAL T26 15 D	4008321**965028**	Daylight	0.8	65	—	—	61	26	9	11
OSRAM LED STAR SPECIAL PIN G4										
G4 – 12 V – Blister										
SPECIAL Pin G4	4008321**977267**	Warm White	1.5	80	—	—	55	19	6	12
OSRAM DULED®, LED night light in Stick/Twist shape										
E27 – 220–240 V – Stick shape – Blister										
DULED 8 W/827 E27	4008321**202284**	Warm White	8	400/3	—	—	117	42	8	13
DULED 12 W/827 E27	4008321**222381**	Warm White	12	620/3	—	—	131	42	8	13
E27 – 220–240 V – Twist shape – Blister										
DULED 15 W/827 E27	4008321**930330**	Warm White	15	830/3	—	—	124	52	6	14
DULED 21 W/827 E27	4008321**930354**	Warm White	21	1230/3	—	—	141	60	6	14

Clear advantage.

The new blister box for LED SUPERSTAR lamps from OSRAM has a clear advantage: all the important information is clearly visible at first glance. It also promotes the innovative nature and the high quality of the products. Your customers benefit from clear orientation at the POS.

See what you're buying.
The best thing about the new blister packaging is that your customers can see the entire product even though it is completely enclosed and ideally protected. This creates confidence and prevents the packaging from being torn open just to see what's inside. For environmental protection reasons the plastic content of the packaging has been reduced as far as possible.

The clearly structured design communicates all the important information and differentiates the product from all the other product groups such as compact fluorescent lamps and halogen lamps. The blister box can be displayed either hanging or standing.

Strong arguments, impressively presented.

LED lamps offer a whole series of impressive benefits. But these benefits only become strong sales arguments if your customers know about them. The POS material from OSRAM provide a structured and eye-catching overview of the extensive range and clearly communicate the benefits of LED technology. Its design strikes a perfect balance between emotion and information. Simply superior. Simply OSRAM LED.

POS shelving.
The large campaign motif draws attention from far and wide. It says that this is where you can get innovative LED products from OSRAM. When customers stand in front of the display they can easily find the lamps they need thanks to clear segmentation enhanced by illuminated shelf dividers. Demo boxes and in-store monitors with two-minute promotions provide information on the benefits of the products and their possible applications.

Special display.
OSRAM offers a display made entirely of cardboard as a sales-boosting secondary placement system. Its unusual shape will certainly arouse the curiosity of your customers. The display is available with or without a demo box.

Calculator wheel.
LEDs are expensive? No way! The calculator wheel will convince your customers that LEDs are not at all expensive. The wheel will quickly show them the enormous savings in electricity costs that they can achieve by using LED lamps.

Know-how: A brief LED glossary.

LED technology is complex. Knowledge of some of the basic concepts will go a long way to helping you understand the principles involved so we have prepared the following glossary for you.

Average lamp life

is an average of the lives of individual lamps operated under standard conditions (50 % failure = average life). LED lamps have extremely long lives. However their light output diminishes over time. OSRAM defines the lifetime of its LED lamps as the operating time in which the LED lamps produce more than 70 % of their initial light output. In doing so, OSRAM is already following the recommendations of the International Electrotechnical Commission (IEC) which is currently working on an international standard based on this threshold value.
➔ Fig. 2

Beam angle

indicates how broadly the light is emitted forwards from the lamp and is defined as the angle between two lines that extend from the LED lamp and intersect the points where luminous intensity is 50 % of its maximum value.

Binning

In the production of modern high-output LEDs manufacturing tolerances are unavoidable even with the smallest fluctuations in the parameters. The semiconductors are therefore sorted and classified after production according to their color values and efficiencies. All the LEDs that have similar values are placed in the same bin. The narrower the tolerances the greater the quality of systems that consist of more than one LED.

Candela

(Latin for tallow candle) is the photometric SI base unit for luminous intensity and is the luminous flux emitted by a light source in a particular direction (the luminous flux lm emitted in a particular direction in a solid angle sr). The symbol is cd.

Color spectrum & definition of color temperature

The color spectrum is that part of the electromagnetic spectrum that can be perceived by the human eye without any technical aids (approx. 380 to 750 nm). The color temperature is a measure of the color impression of a light source measured in kelvin (K). For LED lamps the color temperature typically ranges from 2700 K to 6500 K.
➔ Fig. 1

CRI (Color Rendering Index)

indicates the quality of color rendering of artificial light sources. The symbol used is R_a. The maximum value is 100, which means no falsification of colors by the light source. Incandescent lamps can achieve this value. LED lamps have a typical value of R_a 80, but can achieve R_a 90 and more.

Dimmability

The OSRAM range includes dimmable LEDs. Most of the conventional dimmers available on the market (leading-edge/trailing-edge phase dimmers) have been designed for incandescent lamps and are therefore rated for high minimum loads (W) than LED lamps offer. There may therefore be some restrictions in terms of functionality. For more information on conformity in dimming operations go to www.osram.com/dim

Heat Sink

is the enclosure that serves to remove/radiate the heat from the LED lamp. Materials with good thermal conductivity are used here to transfer the heat generated inside the lamp to the surrounding air.

Infrared radiation

(near IR radiation) comprises electromagnetic waves in the spectral range between visible light and long-wave terahertz radiation. High doses of near infrared radiation in particular with a wavelength of 780 to 3000 nm penetrates deep into and under human skin and can lead to health problems. OSRAM LED lamps do not emit any near IR radiation.

LED

(Light Emitting Diode) is an electronic semiconductor component. If current flows through the diode it emits light with a wavelength that depends on the semiconductor material.

Lens

A lens is an optical component with two refractive surfaces, at least one of which is either convex or concave. In LED lamps the function of a lens is to focus or disperse the light and therefore define the beam angle.

Lumen

(Latin for light or torch) is the photometric unit of luminous flux. Luminous flux is a measure of the entire visible radiation emitted by a radiation source.

Recycling

OSRAM LED lamps are extremely durable and do not contain any mercury. However because they contain electronic components they must be disposed of as waste electrical and electronic equipment at the end of their life.

Resistance to switching transients

LED lamps cannot be switched on and off indefinitely. OSRAM LED lamps can tolerate 100,000 switching cycles and more.

TCO (Total Cost of Ownership)

TCO includes all the costs over the entire life of a lamp or for a particular operating time. It covers procurement costs, relamping costs and operating costs (power). LED lamps now pay for themselves through their long life and low power consumption.
➔ Fig. 3

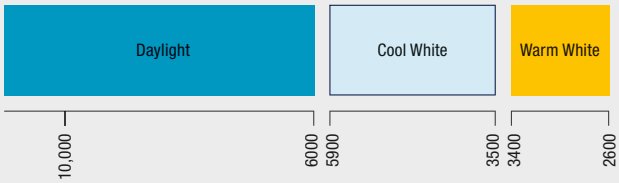


Fig. 1: *OSRAM offers three different color temperatures (K): Warm White, Cool White and Daylight.*

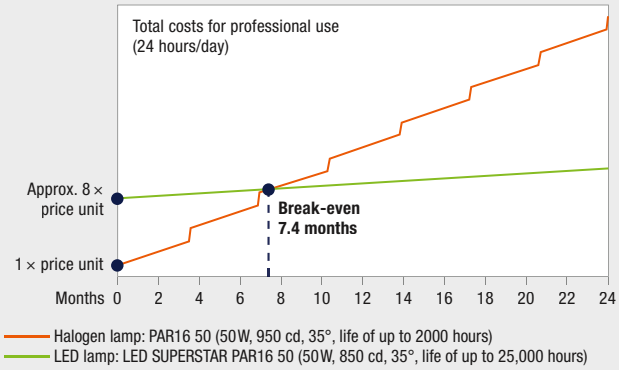

Total costs for professional use
(24 hours/day)
Approx. 8 × price unit
1 × price unit
Break-even
7.4 months
Months 0 2 4 6 8 10 12 14 16 18 20 22 24
Halogen lamp: PAR16 50 (50 W, 950 cd, 35°, life of up to 2000 hours)
LED lamp: LED SUPERSTAR PAR16 50 (50 W, 850 cd, 35°, life of up to 25,000 hours)

Fig. 3: *Sample TCO for a 50 W halogen lamp compared with a OSRAM LED lamp. An LED lamp in a professional application can pay for itself after only 7.4 months.*

Incandescent lamp wattage in W	Typical luminous flux of an OSRAM incandescent lamp in lumen	Required luminous flux of LED lamps as per ErP 244/2009 in lumen
15	90	136
25	220	249
40	415	470
60	710	806
75	935	1055
100	1340	1521
150	2160	2452
200	3040	3452

Fig. 5: *The light values required by the EU that are needed to refer to comparable incandescent lamps are higher than those of the incandescent lamp to be replaced. Lumens are therefore more and more important as a means of comparing lamps and their light output.*

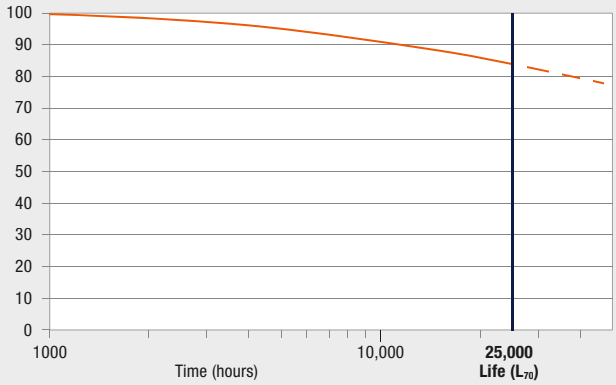
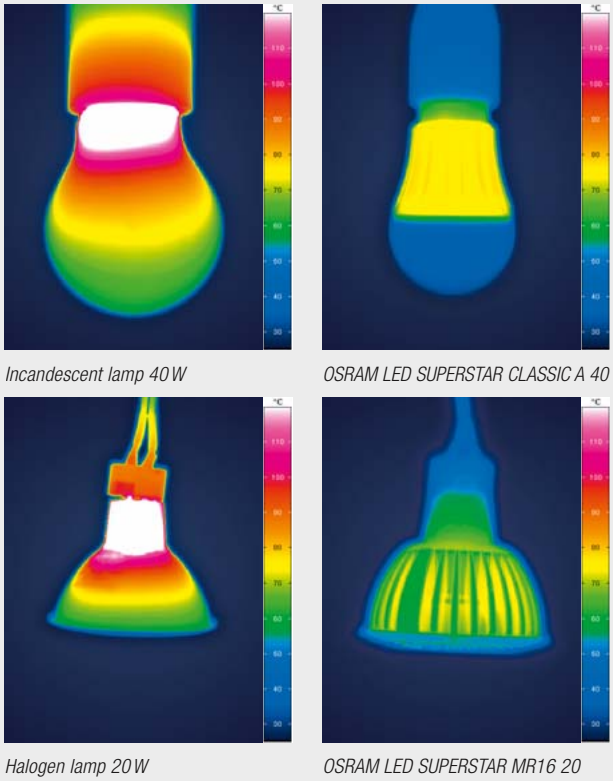


Fig. 2: *Luminous flux of an LED lamp over time (with OSRAM Golden DRAGON® Plus LED) with a life of 25,000 hours. OSRAM defines end of life as 70 % of the original luminous flux (L_{70}).*



Incandescent lamp 40 W — *OSRAM LED SUPERSTAR CLASSIC A 40*

Halogen lamp 20 W — *OSRAM LED SUPERSTAR MR16 20*

Fig. 4: *These thermographic images show that LED lamps emit very little heat.*

Transformers

Low-voltage lamps need an external transformer. A distinction is made between conventional (magnetic) control gear (CCG) and electronic control gear (ECG). Further information can be found in the technical data sheets for each product.

Thermal output

In contrast to conventional light sources, LEDs convert a high proportion of electrical power into visible light. However even with modern LED lamps a large proportion of the energy consumed is emitted in (unwanted) heat. Nevertheless, there is enormous potential in LED technology for reducing this still further (see also Heat Sink).

➔ Fig. 4

UV radiation

is electromagnetic radiation that is invisible to the naked eye and may cause health problems. OSRAM LED lamps do not emit any UV radiation.

Watt

is the SI unit of power and was used for incandescent lamps as an indication of their light output. Since modern energy-saving lamps and LED lamps consume far less power to achieve the same brightness, however, the wattage is no longer as meaningful. The lumen value is now used instead. For LED lamps that replace incandescent lamps the EU Directive for non-directional light (ErP 244/2009) requires a certain minimum luminous flux so that comparisons can be made with incandescent lamp wattages. See table:

➔ Fig. 5

OSRAM AG

Head Office
Hellabrunner Strasse 1
81543 Munich
Germany
Phone +49 (0) 89-6213-0
Fax +49 (0) 89-6213-20 20
www.osram.com

member of voltimum .com

1A4K001GB 10/11 VO OSRAM CRM MK AB Subject to change without notice. OSRAM does not accept liability for errors, changes and omissions.

MIX
Paper from responsible sources
FSC® C014405
FSC www.fsc.org